Claims

What is claimed is:

1. A computer-based system that facilitates optimizing utility of a communication, the system comprising:

an identifier that identifies one or more communication channels that facilitate maximizing the utility of the communication;

a communication group manager that manages a group of communicating parties to facilitate optimizing the utility of the communication along a communication channel identified by the identifier; and

a groupwise communication coordinator that coordinates communication between a subset of the managed group of communicating parties to facilitate maximizing the utility of the communication.

2. The system of claim 1, the communication group manager comprising:

a communication group establisher that establishes the group of communicating parties; and

a communication group modifier that dynamically modifies the group of communicating parties.

3. The system of claim 2, where the communication group establisher creates a group of communicating parties, deletes a group of communicating parties, merges two or more groups of communicating parties, and/or partitions a group of communicating parties into two or more new groups of communicating parties.

4. The system of claim 2, where the communication group modifier adds a new communicating party to a group of communicating parties, removes a communicating party from a group of communicating parties, moves a communicating party from a first group of communicating parties to a second group of communicating parties, and/or changes a communicating party data associated with a communicating party in a group of communicating parties.

5. The system of claim 1, where the identifier identifies a communicating party group that can participate in the communication, analyzes a communicating party group data to facilitate computing the utility of the communication, identifies a communicating party group member that can participate in the communication, and/or analyzes a communicating party group member data to facilitate computing the utility of the communication.

6. The system of claim 5, where the communicating party group data comprises:

a communicating party group identity data;

a communicating party group preference data, and

a communicating party group context data.

7. The system of claim 6, where the communicating party group identity data comprises at least one of:

a group name;

a group membership data;

a group classification data; and

a group inclusion criteria data.

8. The system of claim 6, where the communicating party group preference data comprises at least one of: a desired hardware data, a desired software data, a desired time of day data, a desired group size data, and a desired calendar data.

9. The system of claim 6, where the communicating party group context data comprises:

a hardware data comprising at least one of: a hardware capacity data, a hardware bandwidth data, a hardware availability data, a hardware status data, a hardware cost data, a hardware revision data and a hardware metadata;

a software data comprising at least one of: a software capacity data, a software version data, a software cost data and a software capability data, and

an observed data comprising at least one of: a time of day data, a current activity data, a current task data, a calendar data, a location data, a communication history data, an environment data and a communication needs data.

10. The system of claim 5, where the communicating party group member data comprises:

a communicating party identity data;

a communicating party preference data, and

a communicating party context data.

11. The system of claim 10, where the communicating party identity data comprises at least one of:

a communicating party name;

a communicating party classification; and

an identification of groups in which the communicating party is a member.

12. The system of claim 10, where the communicating party preference data comprises at least one of: a desired hardware data, a desired software data, a desired time of day data, and a desired calendar data.

13. The system of claim 10, where the communicating party context data comprises:

a hardware data comprising at least one of: a hardware capacity data, a hardware bandwidth data, a hardware availability data, a hardware status data, a hardware cost data, a hardware revision data and a hardware metadata;

a software data comprising at least one of: a software capacity data, a software version data, a software cost data and a software capability data, and

an observed data comprising at least one of: a time of day data, a current activity data, a current task data, a calendar data, a location data, a communication history data, an environment data and a communication needs data.

14. The system of claim 2, the communication group establisher dynamically creating, deleting, merging and/or partitioning a group of communicating parties based on analyzing a communicating party group member communication.

15. The system of claim 14, the communication group establisher analyzing the communicating party group member communication by analyzing at least one of:

a communication channel employed, a communication channel available, a communication length, a communication frequency, a communication subject matter, a time between communications, a time to group deadline, a communication group member position in an organization, a communication group member position in a family, a communication group member inclusion in a trusted data, and an initiator of a communication to facilitate determining when to create, delete, merge and/or partition a group of communicating parties.

16. The system of claim 2, the communication group modifier dynamically adding a new communicating party to a group of communicating parties, removing a communicating party from a group of communicating parties, moving a communicating party between groups of communicating parties and/or changing a communicating party data associated with a communicating party based on analysis of a group of communicating parties member communications.

17. The system of claim 16, the communication group modifier analyzing the communicating parties members communications by analyzing at least one of:

a communication channel employed, a communication channel available, a communication length, a communication frequency, a communication subject matter, a time between communications, a time to group deadline, a communication group member position in an organization, a communication group member position in a family, a communication group member inclusion in a trusted data and an initiator of a communication to facilitate determining when to add, remove and/or move a communicating party and/or to update a communicating party data.

18. The system of claim 1, where the communication occurs between one or more contactors and one or more contactees and where the identifier comprises:

a processor;

a preference resolver that analyzes a contactee preference data and a contactor preference data and produces a resolved preference data;

a context analyzer that analyzes a contactee context data and a contactor context data and produces an analyzed context data;

a channel analyzer that analyzes one or more communication channels between a contactor and a contactee and produces a communication channel data; and

a communication establisher that establishes a communication between the contactor and the contactee based, at least in part, on the resolved preference data, the analyzed context data, communicating party selection data and the communication channel data.

19. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties are concurrently engaged in a related activity.

20. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties are likely to become concurrently engaged in a related activity.

21. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties are concurrently engaged in a similar activity.

22. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties are likely to become concurrently engaged in a similar activity.

23. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties are concurrently processing one or more related documents.

24. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties are likely to concurrently process one or more related documents.

25. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties are concurrently viewing one or more related documents.

26. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties are likely to concurrently view one or more related documents.

27. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties are concurrently engaged in a shared project.

28. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties are likely to become concurrently engaged in a shared project.

29. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties are scheduled to communicate within a pre-defined period of time.

30. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties have communicated within a pre-defined period of time.

31. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties are scheduled to meet within a pre-defined period of time.

32. The system of claim 1, the utility optimization based at least in part upon whether two or more communicating parties have met within a pre-defined period of time.

33. The system of claim 1, the utility optimization based at least in part upon whether a communicating party has engaged in one or more pre-defined activities of interest within a pre-defined period of time.

34. The system of claim 1, the utility optimization based at least in part upon whether a communicating party is likely to engage in one or more pre-defined activities of interest within a pre-defined period of time.

35. The system of claim 1, the utility optimization based at least in part upon whether a communicating party has purchased one or more pre-defined items of interest.

36. The system of claim 1, the utility optimization based at least in part upon whether a communicating party has registered an interest in one or more pre-defined items of interest.

37. The system of claim 1, the utility optimization based at least in part upon the degree to which a communicating party is trusted by one or more other communicating parties.

38. The system of claim 1 where an expected utility for the communication is computed by $E[u(d_i, c)] = s_j \, e \, S \, \Sigma \, m \, (s_j, d_i) \, p(s_j | d_i, c)$ where $p(s_j | d_i, c)$ represents a probability of achieving a future state s_j give a decision d concerning situation c, capturing communication channel parameters, nature of a contactor and a context of the a contactee.

39. The system of claim 1, where the utility of the communication is based on at least one of a cost and a benefit of the communication to at least one of a contactor and a contactee.

40. The system of claim 39 where at least one of the cost and the benefit of the communication is related to one or more preferences of at least one of the contactor and the contactee.

41. The system of claim 39, where a utility function employed to compute the utility of the communication is a combination of functions that separately consider at least one of the cost and the benefit of the communication to at least one of the contactor and contactee.

42. The system of claim 39, where a utility function employed to compute the utility of the communication is a multi-linear combination of one or more weighted terms associated with at least one of the contactor and contactee.

43. The system of claim 39, where the group is statically defined.

44. The system of claim 39, where the group is dynamically defined.

45. A computer useable medium having embodied thereon computer executable components of the system of claim 1.

46. The system of claim 1 where the group wise communication coordinator comprises:

a group wise communication assembler that assembles the group of communicating parties, and

a group wise communication scheduler that schedules a time for the group communication that maximizes the utility of the communication.

47. The system of claim 46, where the groupwise communication assembler:

identifies one or more group member classifications required for the group communication;

identifies a minimal number of communicating parties from each of the one or more group member classifications required for the group communication, and

verifies that at least the minimal number of communicating parties from each of the one or more group member classifications are available for the group communication.

48. A computer implemented method for dynamically managing a communicator category membership, the method comprising:

monitoring a communication between one or more communicators to produce a monitor data;

updating a category data based, at least in part, on the monitor data; and

dynamically assigning a communicator to one or more communicator categories based, at least in part, on the monitor data and the category data.

49. The method of claim 48, where monitoring the communication comprises at least one of:

identifying an initiator of the communication, identifying a recipient of the communication, tracking a length of the communication, identifying a subject of the communication, identifying a communication channel along which the communication travels, identifying a related communication, and identifying an urgency of the communication.

50. The method of claim 48, the category data comprising at least one of:

a category membership identification data, a category classification data, a category preference data and a category context data.

51. The method of claim 50, the category classification data comprising at least one of: a category name, a category size, and a category inclusion criteria.

52. The method of claim 50, where updating the category data comprises at least one of: adding a communicator to the category membership identification data, removing a communicator from the category membership identification data, moving a communicator from one category to another category, creating a new category, removing a category, merging two or more categories into one category, partitioning a category into two or more categories, changing the category preference data and changing the category context data.

53. The method of claim 48, where dynamically assigning a communicator to one or more communicator categories comprises:

identifying one or more communicator traits that match category inclusion criteria, and

selectively adding a communicator to a communicator category based on the number of communicator traits that match a category inclusion criteria reaching a pre-determined threshold.

54. A computer useable medium having a program embodied thereon to execute the method of claim 48.

55. A computer implemented method for managing group communications, the method comprising:

computing a desired communication time for a group communication;

computing a desired set of communicators for the group communication;

selecting a set of communication channels for the group communication that will maximize the utility of the group communication based, at least in part, on the desired communication time and the desired set of communicators; and

establishing the group communication.

56. The method of claim 55, where computing the desired communication time for the group communication comprises:

identifying one or more potential times for the group communication;

predicting an expected utility for the group communication at the one or more potential times; and

selecting the desired communication time based, at least in part, on the expected utility for the group communication.

57. The method of claim 55, where computing the desired set of communicators for the group communication comprises:

identifying one or more potential groups of communicators for the group communication;

predicting an expected utility for the group communication based on communicators included in the potential groups of communicators and the selected desired communication time; and

selecting the desired set of communicators based, at least in part, on the expected utility for the group communication.

58. The method of claim 55 where selecting the set of communication channels comprises:

identifying one or more potential communication channels to facilitate the group communication;

predicting an expected utility for the group communication based, at least in part, on the desired communication time, the desired set of communicators, a contactor data, a contactee data and a communication channel data; and

selecting a set of communication channels based, at least in part, on the expected utility.

59. The method of claim 56, where predicting the expected utility for the group communication comprises:

analyzing at least one of a contactor data and a contactee data to determine one or more relationships between at least one of a contactee preferences, a contactor preferences, a contactee capabilities and a contactor capabilities;

selecting one or more expected utility computation rules based, at least in part, on the relationships; and

applying the one or more expected utility computation rules to determine the expected utility based, at least in part, on the relationships.

60. The method of claim 56, where predicting the expected utility for the group communication comprises:

analyzing a contactee data to determine one or more missing contactee data values;

selectively inferring one or more missing contactee data values to produce one or more contactee inferences;

analyzing a contactor data to determine one or more missing contactor data values;

selectively inferring one or more missing contactor data values to produce one or more contactor inferences;

analyzing the one or more contactee inferences and/or contactor inferences to determine one or more relationships; and

applying one or more inference formulae to maximize the expected utility of the communication between the communicating parties.

61. The method of claim 60, where the inference formulae are decision-theoretic formulae.

62. A computer useable medium having a program embodied thereon to execute the method of claim 55.

63. A computer implemented method for identifying a communication channel and a communication group that will maximize the utility of a group communication, the method comprising:

identifying one or more group members;

identifying one or more potential communication channels;

analyzing a channel data associated with the one or more potential communication channels, where the channel data may be deterministic and/or uncertain;

analyzing a group data associated with one or more groups to which the one or more group members belong;

analyzing a communication data associated with the communication whose utility is to be maximized;

for one or more potential groups for the group communication:

forming a candidate group for the group communication, and

predicting the expecting utility of the group communication for the candidate group;

ranking the expected utility for the one or more potential groups; and

selecting a group and a channel for the group communication.

64. A computer useable medium having a program embodied thereon to perform the method of claim 63.

65. A computer implemented method for dynamically managing communication groups, the method comprising:

identifying a communicating party that is eligible for membership in one or more communication groups;

identifying a communication group to be managed; and

managing a communication group.

66. The method of claim 65, where managing a communication group comprises at least one of:

creating a communication group, deleting a communication group, merging two or more communication groups, dividing a communication group into two or more communication groups, adding a communicating party to a communication group, removing a communicating party from a communication group, moving a communicating party from one communication group to another communication group, updating the status of a communicating party in a communication group and replicating a communicating party from one communication group to another communication group.

67. The method of claim 66, where a communication group is selectively managed based on at least one of, analysis of calendar data, analysis of context data, analysis of observed data and analysis of trust data.

68. A computer readable medium containing computer executable instructions operable to perform the method of claim 65.

69. A computer implemented system for optimizing the utility of a communication involving a group member, the system comprising:

means for creating a group;

means for managing a group; and

means for a recipient to communicate with a group member, where the utility of the communication is optimized based, at least in part, on a preference, and a context associated with the group to which the member belongs.

70. In a computer system having a graphical user interface that comprises a display and a selection device, a method of providing and selecting from a menu on the display, the method comprising:

retrieving a set of menu entries for the menu, each of the menu entries representing a group selected for a group communication, where the group

communication has a calculated expected utility based, at least in part, on group membership;

displaying the set of menu entries on the display;

receiving a menu entry selection signal indicative of the selection device selecting a selected menu entry from the set of menu entries; and

in response to the menu entry selection signal, initiating a communication represented by the menu entry.

71. A data packet adapted to be transmitted between two or more computer components, the data packet comprising:

a first field that stores a communication expected utility data associated with a communication based, at least in part, on group membership information;

a second field that stores information for identifying one or more group members who will participate in the communication; and

a third field that stores group membership information for the one or more group members identified in the second field.

72. A memory for storing data for access by a computer component, the memory comprising:

a data structure stored in the memory, the data structure holding:

a first field that stores a communication expected utility data associated with a communication based, at least in part, on group membership information;

a second field that stores information for identifying one or more group members who will participate in the communication; and

a third field that stores group membership information for the one or more group members identified in the second field.

73. A set of application program interfaces embodied on a computer-readable medium for execution on a computer component in conjunction with a group management program, comprising:

a first interface that receives group membership information;

a second interface that receives communication channel information;

a third interface that receives communication information; and

a fourth interface that provides communication channel information and communication group membership information employed in facilitating maximizing the utility of a group communication.

74. A system for dynamically assigning people to activity-centric communication groups, comprising:

a communication group manager that receives a context data associated with a communicating party;

a communication group establisher that dynamically establishes a group of communicating parties based, at least in part on the context data; and

a communication group modifier that dynamically modifies the group of communicating parties based, at least in part, on the context data.

75. A system for optimizing the utility of a communication, comprising:

a communication group manager that facilitates specifying at least one of policies, preferences and analysis of at least one of communication routing and scheduling in terms of groups of communicating parties; and

a communication group establisher that facilitates establishing a communication based, at least in part, on at least one of the policies, preferences and analysis associated with the communication group manager.

76. The system of claim 75, where the groups of communicating parties are prepopulated clusters of communicating parties.

77. The system of claim 75, where the groups of communicating parties are assembled based on descriptions of relationships between the communicating parties.

78. The system of claim 77, where the relationships comprise organizational relationships.

79. The system of claim 77, where the relationships comprise familial relationships.

80. The system of claim 75, where a communicating party is assigned to a group of communicating parties based on the satisfaction of one or more inclusion criteria for a group.

81. A computer-based system that facilitates optimizing utility of a communication, the system comprising:

an identifier that identifies one or more communication channels that facilitate maximizing the utility of the communication;

a communication group constructor that dynamically constructs and manages a group of communicating parties to facilitate optimizing the utility of the communication along a communication channel identified by the identifier; and

a groupwise communication coordinator that coordinates communication between a subset of the managed group of communicating parties to facilitate maximizing the utility of the communication.

82. The system of claim 81, the group constructor dynamically constructing the group based at least in part upon appointment information in a calendar.

83. The system of claim 82, the constructed group comprising a subset of attendees of a meeting.

84. The system of claim 83, the meeting being a past event.

85. The system of claim 83, the meeting being a future event.

86. The system of claim 82, wherein a plurality of groups are constructed, each group comprising a subset of attendees of a plurality of meetings.